

WHAT IS CLAIMED IS:

1. A functional fluid comprising:
  - a) a base stock or base oil, said base stock or base oil having the  
5 properties of:
    - (i) a viscosity index (VI) of about 130 or greater;
    - (ii) a pour point of about -10C or lower;
    - (iii) a ratio of measured-to-theoretical low-temperature viscosity  
10 equal to about 1.2 or less, at a temperature of about -30C or  
lower, where the measured viscosity is cold-crank simulator  
viscosity and where theoretical viscosity is calculated at the same  
temperature using the Walther-MacCoull equation wherein said  
base stock or base oil is not a Group IV base stock or base oil;  
and
  - 15 b) at least one additive.
2. A functional fluid comprising:
  - a) at least one base stock or base oil wherein said base stock or base oil  
has a VI of at least 130 produced by a process which comprises:
    - 20 (i) hydrotreating a feedstock having a wax content of at least about  
60 wt.%, based on feedstock, with a hydrotreating catalyst under  
effective hydrotreating conditions such that less than 5 wt.% of  
the feedstock is converted to 650F (343C) minus products to  
produce a hydrotreated feedstock whose VI increase is less than  
25 4 greater than the VI of the feedstock;
    - (ii) stripping the hydrotreated feedstock to separate gaseous from  
liquid product;
    - (iii) hydrodewaxing the liquid product with a dewaxing catalyst  
which is at least one of ZSM-48, ZSM-57, ZSM-23, ZSM-22,

ZSM-35, ferrierite, ECR-42, ITQ-13, MCM-71, MCM-68, beta, fluorided alumina, silica-alumina or fluorided silica alumina under catalytically effective hydrodewaxing conditions wherein the dewaxing catalyst contains at least one Group 9 or Group 10 noble metal; and

b) at least one additive.

3. A functional fluid comprising:

a) at least one base stock or base oil wherein said base stock has a VI of at least 130 produced by a process which comprises:

(i) hydrotreating a lubricating oil feedstock having a wax content of at least about 50 wt.%, based on feedstock, with a hydrotreating catalyst under effective hydrotreating conditions such that less than 5 wt.% of the feedstock is converted to 650F (343C) minus products to produce a hydrotreated feedstock to produce a hydrotreated feedstock whose VI increase is less than 4 greater than the VI of the feedstock;

(ii) stripping the hydrotreated feedstock to separate gaseous from liquid product;

(iii) hydrodewaxing the liquid product with a dewaxing catalyst which is at least one of ZSM-22, ZSM-23, ZSM-35, ferrierite, ZSM-48, ZSM-57, ECR-42, ITQ-13, MCM-68, MCM-71, beta, fluorided alumina, silica-alumina or fluorided silica-alumina under catalytically effective hydrodewaxing conditions wherein the dewaxing catalyst contains at least one Group 9 or 10 noble metal;

(iv) hydrofinishing the product from step (3) with a mesoporous hydrofinishing catalyst from the M41S family under hydrofinishing conditions; and

b) at least one additive.

4. A functional fluid comprising:

a) at least one base stock wherein said base stock has a VI of at least 130  
5 produced by a process which comprises:

(i) hydrotreating a lubricating oil feedstock having a wax content of  
at least about 60 wt.%, based on feedstock, with a hydrotreating  
catalyst under effective hydrotreating conditions such that less  
than 5 wt.% of the feedstock is converted to 650F (343C) minus  
10 products to produce a hydrotreated feedstock to produce a  
hydrotreated feedstock whose VI increase is less than 4 greater  
than the VI of the feedstock;

(ii) stripping the hydrotreated feedstock to separate gaseous from  
liquid product;

15 (iii) hydrodewaxing the liquid product with a dewaxing catalyst  
which is ZSM-48 under catalytically effective hydrodewaxing  
conditions wherein the dewaxing catalyst contains at least one  
Group 9 or 10 noble metal;

(iv) Optionally, hydrofinishing the product from step (3) with MCM-  
20 41 under hydrofinishing conditions; and

b) at least one additive.

5. The functional fluid as in claim 2, 3 or 4 wherein said feedstock is a  
synthetic gas to liquid feedstock.

25 6. The functional fluid as in claims 2, 3 or 4 wherein said feedstock is made  
by a Fischer-Tropsch process.

7. The functional fluid having improved Brookfield viscosity at -20F or lower comprising the base stock or base oil of claims 1, 2, 3 or 4 and at least one performance enhancing additive.

5 8. The functional fluid having improved Brookfield viscosity at -20F or lower comprising the base stock or base oil of claims 1, 2, 3 or 4 and at least one performance enhancing additive, where said performance enhancing additive is not a viscosity index improver.

10 9. A functional fluid composition comprising the base oil or base stock of any one of the claims 1, 2, 3 or 4, wherein the Brookfield viscosity is less than or equal to about 40000 cP at -20F.

15 10. A functional fluid composition comprising the base oil or base stock of any one of the claims 1, 2, 3 or 4, wherein the Brookfield viscosity is less than or equal to about 28000 cP at -20F.

20 11. A functional fluid composition comprising the base oil or base stock of any one of the claims 1, 2, 3 or 4, wherein the Brookfield viscosity is less than or equal to about 6500 cP at -20F.

25 12. A functional fluid composition comprising the base oil or base stock of any one of the claims 1, 2, 3 or 4, wherein the Brookfield viscosity is less than or equal to about 6200 cP at -20F

13. The method of making a functional fluid having improved Brookfield viscosity at -20F or lower comprising incorporating a base stock or base oil having the properties of

(a) a viscosity index (VI) of 130 or greater,

(b) a pour point of -10C or lower,  
(c) a ratio of measured-to-theoretical low-temperature viscosity  
equal to 1.2 or less, at a temperature of -30C or lower, where the  
measured viscosity is cold-crank simulator viscosity and where  
theoretical viscosity is calculated at the same temperature using the  
Walther-MacCoull equation.

wherein said base stock or base oil is not a Group IV base stock or base  
oil.

14. A method of improving the Brookfield viscosity of a base stock  
comprising incorporating said base stock or base oil of any one of the claims 1,  
2, 3 or 4.

15. A method of improving the Brookfield viscosity of a functional fluid  
comprising incorporating a base stock or base oil of any one of the claims 1, 2, 3  
or 4.

16. A method of improving the Brookfield viscosity of a hydraulic oil  
comprising incorporating a base stock or base oil of any one of the claims 1, 2, 3  
or 4.

17. A method of improving a functional fluid by admixing the base oil or  
base stock of any one of the claims 1, 2, 3 or 4, wherein the Brookfield viscosity  
of the final mixture is less than or equal to about 40000 cP at -20F.

18. A method of improving a functional fluid by admixing the base oil or  
base stock of any one of the claims 1, 2, 3 or 4, wherein the Brookfield viscosity  
of the final mixture is less than or equal to about 28000 cP at -20F.

19. A method of improving a functional fluid by admixing the base oil or base stock of any one of the claims 1, 2, 3 or 4, wherein the Brookfield viscosity of the final mixture is less than or equal to about 6500 cP at -20F.
- 5 20. A method of improving a functional fluid by admixing the base oil or base stock of any one of the claims 1, 2, 3 or 4, wherein the Brookfield viscosity of the final mixture is less than or equal to about 6200 cP at -20F
21. Any one of the proceeding claims wherein the functional fluid is a hydraulic  
10 oil.